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EXAMINER

HRUSKOCI, PETER A

ART UNIT

PAPER NUMBER

1724

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/327,266

Applicant(s)

YOON, ROE-HOAN

Examiner

Peter A. Hruskoci

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 19 May 2003.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1,2,10-13 and 67-78 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1,2,10-13 and 67-78 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

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1. The disclosure is objected to because of the following informalities: On page 40 line 7 "2" appears to be erroneous and should be changed to - 3 -.

Appropriate correction is required.

2. Claim 74 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 74 "oxide...silicate," "talc minerals", and "greater than 15" lack clear antecedent basis in the specification as originally filed, and appear to be drawn to new matter.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 10, 11, 13, 67-69, 71-74, 77, and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. 5,670,056 in view of Yoon et al. 5,161,694. Yoon et al. (056) disclose (see col. 2 line 21 through col. 6 line 32) a process for dewatering a slurry of fine particulate material substantially as claimed. It is submitted that the addition of a combination of non-ionic surfactants and hydrophobic

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polymers as disclosed in Yoon et al. (056) would appear to increase the hydrophobicity of the particulate material as in the instant process. The claims differ from Yoon et al. (056) by reciting specific steps for initially increasing the hydrophobicity of the particulate material with a surfactant and a hydrocarbon oil, respectively. Yoon et al. (694) disclose (see col. 13 lines 21-40, and col. 17 lines 3-49) that it is known in the art to add surfactants to mixtures of non-hydrophobic material to render the material hydrophobic, and to add hydrocarbon oil to slurries of hydrophobic material to aid in coagulating the material. It would have been obvious to one skilled in the art to modify the process of Yoon et al. (056) by addition of the recited surfactant and hydrocarbon oil in view of the teachings of Yoon et al. (694) to increase the hydrophobicity of the particulate material and aid coagulating the material in the slurry. With regard to claim 67, it is submitted that the coal dewatered in Yoon et al. (056) and (694) appears to be hydrophobic. The specific HLB of the surfactant utilized would have been considered an obvious matter of process optimization to one skilled in the art, depending on the specific slurry dewatered and results desired, absent a sufficient showing of unexpected results.

5. Claims 12 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. (056) in view of Yoon et al. (694) as applied above, and further in view of Wang et al. 4,210,531. The claims differ from the references as applied above by reciting

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that the surfactant is blended with a specific oil. Wang et al. disclose (see col. 2 line 27 through col. 4 line 24) that it is known in the art to utilize a combination of surfactant and the recited oils, to aid in dewatering mineral slurry concentrates. It would have been

obvious to one skilled in the art to modify the references as applied above by utilizing a surfactant blended with the recited oils in view of the teachings of Wang et al., to aid in dewatering the slurry.

6. Claims 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. (056) in view of Yoon et al. (694) as applied above, and further in view of Yoon et al. 5,814,210. The claims differ from the references as applied above by reciting that the surfactant used for the initial step is a thiol-type surfactant. Yoon et al. (210) disclose (see col. 17 lines 20-35) that it is known in the art to utilize a thiol-type surfactant as a collector to render sulfide minerals hydrophobic. It would have been obvious to one skilled in the art to modify the references as applied above by utilizing the recited thiol-type surfactants in view of the teachings of Yoon et al.(694), to aid in dewatering the slurry.

7. Applicant argues that the word combine means to form a chemical compound and has no connotation for the sequencing recited in the instant process. It is submitted that the combinations disclosed in Yoon et al. (056) do not appear to be drawn to the

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formation of new compounds. It is further submitted that these combinations appear to be drawn to mixtures of the surfactants and polymers, or the separate addition which would appear to include a sequential addition as in the instant process.

8. Applicant argues that in the claimed invention two different types of surfactants are used for the initial hydrophobization, followed by the secondary hydrophobization. It is submitted that claim 1 is not limited to the use of two different types of surfactants. It is further submitted that the addition of a nonionic surfactant in the first hydrophobizing is not excluded from the instant claims.

9. The test results shown in Exhibits A and B have been carefully considered but fail to overcome the above rejections. It is submitted that results should be presented in the form of a 37 CFR 1.132 declaration or affidavit to receive proper consideration. The test results utilized test conditions which are not commensurate with the scope of the instant claims. Furthermore, the results fail to include comparative evidence with the process of Yoon et al. (056) used in the above rejections.

10. Applicant alleges that the two-step hydrophobization produces benefits and advantages over the method of Yoon et al. (056) as shown in Examples 19 and 20. These Examples have been carefully considered but fail to overcome the above rejections. It is submitted that the specific test conditions utilized to produce the results shown in these

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Examples are not commensurate with the scope of the instant claims. It is noted that these conditions included the use of specific surfactants in the dewatering of specific slurries. Furthermore, these Examples fail to include comparative evidence with the prior art used in the above rejections to support the above allegation.

11. Applicant argues that Yoon et al. (694) utilizes the hydrophobization process for selectively coagulating and separating hydrophilic particles, and not for dewatering. It is submitted that the addition of a combination of non-ionic surfactants and hydrophobic polymers as disclosed in Yoon et al. (056) would appear to increase the hydrophobicity of the particulate material for dewatering as in the instant process. Furthermore, Yoon et al. (694) was applied above to teach that it is known in the art to add surfactants to mixtures of non-hydrophobic material to render the material hydrophobic, and to add hydrocarbon oil to slurries of hydrophobic material to aid in coagulating the material.

12. Applicants arguments concerning Wang et al. are based on the propriety of Yoon et al. (056), which is deemed properly applied for reasons stated above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is (703) 308-3839. The examiner can normally be reached on Monday through Friday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Blaine Copenheaver, can be reached on (703) 308-1261. The fax phone number for this Group is (703) 872-9310 (non-after finals) and 703-872-9311 after finals.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661 .


Peter A. Hruskoci
Primary Examiner
Art Unit 1724

P. Hruskoci
June 30, 2003